| ,          |                            |            |                |            |         |              |          |          |           |              |     |                |          | Application No. |  |                    |                        |          |           |          |             | Applicant(s) |          |            |                        |           |         |         |          |                |          |          |          |     |          |
|------------|----------------------------|------------|----------------|------------|---------|--------------|----------|----------|-----------|--------------|-----|----------------|----------|-----------------|--|--------------------|------------------------|----------|-----------|----------|-------------|--------------|----------|------------|------------------------|-----------|---------|---------|----------|----------------|----------|----------|----------|-----|----------|
|            |                            |            | In             | ae         | X (     | ot (         | Cla      | air      | ns        |              |     |                |          |                 |  |                    |                        |          |           |          |             |              |          |            |                        |           |         |         |          |                |          |          |          |     |          |
|            |                            |            |                | <b>:</b> . |         |              | •        |          | ٠.        |              | . ' |                |          |                 |  |                    | 10/647,170<br>Examiner |          |           |          |             |              |          |            |                        | Art Unit  |         |         |          |                |          |          | <u>:</u> |     | <u> </u> |
| 1          |                            | ٠.,        |                |            |         |              |          | •        |           |              | •   |                |          |                 |  | =                  |                        |          |           |          |             |              |          |            | •                      | Art Unit  |         |         |          |                |          |          |          |     |          |
|            |                            | · ;        | i · <u>:</u> . |            |         |              |          |          |           |              |     |                |          |                 |  | , i <sub>k</sub> , |                        |          |           |          |             |              | • • •    |            |                        |           |         |         |          |                |          |          |          |     |          |
| <u> </u>   | -                          |            |                |            |         |              |          |          |           |              |     |                |          |                 | _  |                    |                        |          |           |          |             |              |          |            |                        |           |         | •       |          |                |          |          |          |     | ····     |
|            | / Rejected (Through numera |            |                |            |         |              |          |          |           |              |     |                |          | all             |  |                    |                        |          |           |          |             |              |          |            |                        |           |         |         |          |                |          |          |          |     |          |
| ŀ          |                            |            |                | Rejected   |         |              |          |          | -         |              | ,,, | Cancelled      |          |                 |  | α.,                | ,                      | H        | N         | N        | on-         | -Elected     |          |            | A                      | Appeal    |         |         |          |                |          |          |          |     |          |
|            |                            |            | H              |            |         |              |          | 1        |           | <del> </del> |     |                |          |                 |  |                    |                        |          | $\exists$ |          |             |              |          |            | $\vdash$               |           |         |         |          | 1              |          |          |          |     |          |
|            |                            |            | =              | ΑI         | low     | wed          |          |          | +         | ·   .        |     | Restricted     |          |                 |  |                    |                        |          | In        | ter      | fere        | nce          |          | 이          |                        | Obj       | ect     | ted     |          |                |          |          |          |     |          |
|            |                            |            | لــــا         |            |         |              | J<br>    |          |           | L            |     |                |          |                 |  | <del></del>        |                        | 1        | Ш         |          |             |              | <u> </u> | J          |                        | <u> </u>  |         |         |          | J              |          |          |          |     |          |
|            | CI                         | alm        |                | Da         |         |              | e        |          |           |              |     | Cl             | aim      |                 | _  |                    |                        | Date     |           |          |             |              | C        | Claim      | $\Box$                 | Date      |         |         |          |                |          |          |          |     |          |
| <b> </b> . |                            | -e         |                |            |         | Т            | Γ        |          |           |              |     | _              | E        |                 |  |                    |                        | .        |           | ı        | 1           | -            | _        | ā          |                        |           |         |         | 1        |                |          |          |          |     |          |
|            | Final                      | Original   |                |            |         |              |          |          |           |              |     | Final          | Original | ĺ               | i  |                    |                        |          |           |          | i           |              | Final    | Original   |                        |           |         |         |          |                | H        |          |          |     |          |
|            | "                          | δ.         |                |            |         | 1            | 1        |          |           |              |     | "              | ō        |                 |  |                    |                        |          |           | ı        |             | Ì            | -        | ō          |                        |           |         |         |          |                |          |          |          | •   |          |
|            |                            | 0          |                | ゴ          | 工       |              |          |          |           |              |     |                | 51       |                 |  |                    |                        |          |           | $\Box$   |             |              |          | 101        | П                      | 1         | $\perp$ |         | L        |                |          |          |          |     |          |
|            |                            | Ž          | Н              |            | +       | ╁            | <b> </b> | _        |           | ÷            |     |                | 52<br>53 | -               |  | L                  | -                      | _        | $\dashv$  | $\dashv$ | 4           | 4            | $\vdash$ | 102        | ╀╌┨                    |           | ╫       | +-      | ╁        | Ļ              | $\vdash$ | $\dashv$ |          |     |          |
|            | -                          | 3          | Н              | +          | +       | ╁            | -        |          | -         | Н            |     |                | 54.      | ┝               |  | -                  | H                      |          | -         | -        | ┪           | $\dashv$     | $\vdash$ | 104        | 1-1                    | +         | ╈       | +       | +        | ╂~             | Н        | $\dashv$ |          |     |          |
|            |                            | 5          | H              |            |         |              | T        |          |           |              |     |                | 55       |                 |  |                    |                        |          |           |          |             |              |          | 105        |                        |           |         |         |          |                |          |          |          |     |          |
|            |                            | 6          |                | _          | $\perp$ | 1            |          |          | П         |              |     |                | 56       | _               | <u> </u>   | L                  | Н                      |          | $\dashv$  | 4        | 4           |              | -        | 106<br>107 | $\sqcup$               | 4         | +       | +       | +        | -              | $\vdash$ |          |          |     | .• .     |
|            | -                          | 8          | $\vdash$       | $\dashv$   | +-      | ╂            | ┢        |          | Н         | $\vdash$     |     | <del></del>    | 57<br>58 | ┝               | ┝  | $\vdash$           | Н                      |          | $\dashv$  |          | +           | $\dashv$     | H        | 107        | H                      | ╁         | ╁       | ╁       | +        | -              | ┨        | $\dashv$ | 4        |     | • .      |
|            |                            | 9          | Н              | 十          | 亡       | 1            |          |          | П         |              |     |                | 59       |                 |  |                    |                        |          |           | ゴ        | Ī           |              |          | 109        |                        | 士         |         |         |          |                |          |          |          | ٠.  | •        |
|            |                            | 10         |                | $\Box$     | $\perp$ | oxdot        |          |          |           |              |     |                | 60       |                 | _  | L                  | Ц                      |          |           | -        | 4           | _            |          | 110        |                        | 4         | 4-      | 4       | 1_       | ╁_             |          | Щ        |          | . • |          |
|            | -                          | (1)<br>(2) |                | $\dashv$   | +       | ┼-           | ⊢        | <u> </u> | Н         |              |     | <del> </del> — | 61<br>62 | -               | -  | -                  | $\vdash$               | $\dashv$ | $\dashv$  | $\dashv$ | $\dashv$    | $\dashv$     | -        | 111<br>112 | $\vdash$               | +         | ╁       | ╁       | +        | ╁╌             | Н        | $\dashv$ |          |     |          |
|            | _                          | 18         |                | +          | +       | 十            | $\vdash$ |          | Н         |              |     | · · · · ·      | 63       |                 |  |                    |                        |          |           | コ        | 寸           |              |          | 113        |                        |           |         |         |          |                |          | ·        |          |     |          |
|            |                            | 18<br>14   |                |            |         | 匚            |          |          |           |              |     |                | 64       |                 |  |                    |                        |          |           | $\Box$   | $\sqsupset$ | 7            |          | 114        |                        | $\bot$    | $\bot$  |         | $\perp$  | 二              |          |          |          |     |          |
|            |                            | 15<br>16   |                |            | 4       | ╁            | -        | -        | Н         | $\dashv$     |     | <u> </u>       | 65<br>66 | -               | -  | -                  | Н                      | $\dashv$ |           | -        | $\dashv$    | -            | -        | 115<br>116 | $\vdash$               | -1        | +       | ╁       | +        | ╁╾             | Н        |          |          |     |          |
|            |                            | 17         | Н              | $\dashv$   |         | ╁╴           |          |          | Н         | $\vdash$     |     | $\vdash$       | 67       | -               | $\vdash$   | ┝                  | Н                      | 一        | -         | -+       | -†          | $\dashv$     | <b> </b> | 117        |                        | $\dashv$  | ┪       | +       | †-       | 1              | $\vdash$ | $\dashv$ |          |     |          |
|            |                            | 18         |                |            |         |              |          |          |           |              |     |                | 68       |                 |  |                    |                        | 口        |           | $\Box$   | $\Box$      |              |          | 118        |                        |           |         | I       |          |                |          |          |          |     |          |
|            |                            | 19         |                | 4          | 4       | ╄            | <b>!</b> |          |           |              |     | <b> </b> -     | 69<br>70 | <u> </u>        | Ŀ  | -                  | Н                      | $\dashv$ | _         |          | 4           | 4            | -        | 119<br>120 | $\vdash$               | +         | +       | +-      | ╁        | ╁-             | -        | $\dashv$ |          |     |          |
|            |                            | 26<br>21   | -              | +          | +       | ╁╌           | ┢        | H        | Н         | -            |     |                | 71       | -               | -  | H                  | $\vdash$               | -        | $\dashv$  | $\dashv$ | +           | $\dashv$     | $\vdash$ | 121        | $\vdash$               | +         | +       | +       | +        | +              | $\vdash$ |          |          |     |          |
|            |                            | 22         |                |            |         |              |          |          |           |              |     |                | 72       |                 |  |                    |                        |          |           |          | コ           |              |          | 122        |                        |           |         |         |          |                |          |          |          |     |          |
|            |                            | 23         |                | Ц.         | $\perp$ | Į            |          | Щ        |           |              |     |                | 73       | L               | _  | ļ.,                | Ш                      | $\dashv$ | _         | _        | 4           | 4            | <u> </u> | 123        |                        |           | 4       | $\bot$  | $\bot$   | <del> </del> - |          | _        |          |     |          |
|            | -                          | 24<br>25   | $\dashv$       | $\dashv$   | ╀       | ╁            | -        | -        |           | $\dashv$     |     | <b> </b>       | 74<br>75 | -               | -  | _                  | $\vdash$               | $\dashv$ | $\dashv$  | -        | +           | $\dashv$     | $\vdash$ | 124<br>125 |                        | +         | ╁       | ╁       | ╁╌       | ╁              | Н        | $\dashv$ |          |     |          |
|            | -                          | 26         |                | +          | +       | 1            |          | Н        | $\vdash$  | $\neg$       |     |                | 76       | ┢╴              | -  | -                  | H                      | $\neg$   | $\dashv$  | _        | 7           | _            |          | 126        |                        |           | _       |         |          |                |          |          |          |     |          |
|            |                            | 27         |                |            |         |              |          |          |           |              |     |                | 77       |                 |  |                    |                        | $\Box$   | $\Box$    | $\Box$   |             |              |          | 127        | П                      | $\perp$   | Ţ       | I       | 1_       | _              |          |          |          |     |          |
|            |                            | 28         | $\dashv$       |            | -       | <del> </del> |          | -        | $\Box$    |              |     | <b> </b>       | 78<br>79 | _               |  | _                  | $\vdash$               | -        | $\dashv$  | -        | -1          | -            | -        | 128<br>129 | $\left  \cdot \right $ |           | +-      | +-      | ╂        | ╀              | $\vdash$ | $\dashv$ |          | -   |          |
|            |                            | 29<br>30   | $\vdash$       | 十          | +       | ╁            | ├-       | Н        | Н         |              |     |                | 80       | -               | -  | -                  | -                      |          | -         | +        | -           | $\dashv$     | -        | 130        | $\vdash$               | $\dashv$  | +       | - -     | ╁        | ╁╌             | $\vdash$ | $\dashv$ |          |     |          |
|            | -                          | 31         |                | $\top$     | +       | T            |          | П        |           |              |     |                | 81       |                 |  |                    |                        |          |           |          |             |              |          | 131        |                        |           | 1       |         |          |                |          |          |          |     |          |
|            |                            | 32         |                | $\perp$    | $\perp$ |              |          |          |           |              |     |                | 82       |                 |  | _                  |                        | $\dashv$ |           | 4        | _           | _            | <u> </u> | 132        | $\sqcup$               | 4         | 4       | 4       | <b>-</b> |                | -        |          |          |     |          |
|            | -                          | 33<br>34   | -              | -          | -       | ╂            |          | -        | -         | $\dashv$     |     |                | 83<br>84 | -               | -  |                    | $\vdash$               |          | -         | $\dashv$ | +           | $\dashv$     | -        | 133<br>134 | ╂╾┨                    |           | - -     | ╁       | ╁        | ╁              | H        |          |          |     |          |
|            | -                          | 35         | $\dashv$       | +          | +       | +            | ╁        | $\vdash$ | Н         | -            |     | ┢              | 85       | $\vdash$        | _  | -                  | Н                      | -        |           | $\dashv$ | +           | $\dashv$     |          | 135        | H                      | $\dashv$  | 十       | +       | 1        | <del> </del>   |          |          |          |     |          |
|            |                            | 36         |                | 士          |         |              |          |          |           |              |     |                | 86       |                 |  |                    |                        |          |           | $\Box$   |             |              |          | 136        |                        | $\Box$    | $\perp$ | $\perp$ | 1        |                |          |          |          |     |          |
|            | L_                         | 37         | $\dashv$       | 1          | 4_      | 1_           | <u> </u> |          |           |              |     | <u> </u>       | 87       | _               | Ļ  |                    | Н                      |          |           |          | -           | _            | -        | 137        |                        | -         |         | +       | ╀-       | ⊢              | $\vdash$ | $\dashv$ |          |     |          |
|            |                            | 38<br>39   | -              | -          | +       | ╀            | ├        | -        | Н         |              |     | -              | 88<br>89 | -               | <u> </u>   | -                  | Н                      | $\dashv$ |           |          | $\dashv$    | $\dashv$     | -        | 138<br>139 | H                      | ┽         | +       | ╁       | +-       | ╁              | $\vdash$ | $\dashv$ |          |     |          |
|            |                            | 40         | -              | +          | +-      | ╁            | ╁╌       | Н        | Н         | $\dashv$     |     |                | 90       | ┢               | -  | -                  | Н                      | $\dashv$ | $\dashv$  | 十        | -           | $\dashv$     | :        | 140        | $\square$              | $\dashv$  | 十       | +       | +        | 十              | 1-1      |          |          |     |          |
|            |                            | 41         |                |            |         |              |          |          |           |              |     |                | 91       |                 |  |                    |                        |          |           |          |             |              |          | 141        |                        |           |         |         | I        |                |          |          |          |     |          |
|            | ·                          | 42         | $\Box$         | $\perp$    |         |              |          |          | $\square$ |              |     |                | 92       | Ĺ               | L  |                    |                        | _        | $\Box$    | 1        | 4           | _            |          | 142        |                        | -         | - -     | 4       | -        | 1              | $\sqcup$ | Ц        |          |     |          |
|            | <u> </u>                   | 43<br>44   | $\vdash$       | -          | +       | $\vdash$     | $\vdash$ |          | $\vdash$  |              |     |                | 93<br>94 | -               | <del> </del>                                     | -                  | $\vdash$               | _        |           | $\dashv$ | $\dashv$    | $\dashv$     | -        | 144        | $\vdash$               | $\dashv$  | +       | +       | +-       | +-             |          | -        |          |     |          |
|            | -                          | 45         |                | +          | +-      | ┼─           |          |          | $\vdash$  |              |     |                | 95       | -               | <del>                                     </del> | $\vdash$           | H                      | $\dashv$ | $\dashv$  | $\dashv$ | $\dashv$    | $\dashv$     | -        | 145        | +                      | $\dashv$  | +       | ╁       | 1-       | 1              | Н        | Н        | ļ .      |     |          |
| - ,0       |                            | 46         |                | _†         |         | 1            |          |          |           |              |     |                | 96       |                 |  |                    |                        |          | ╛         | ╛        | ⇉           |              |          | 146        |                        |           | 工       | I       | $\perp$  |                | П        |          |          |     |          |
|            |                            | 47         |                | Ţ          | T       |              |          |          | П         |              |     |                | 97       |                 |  |                    |                        | $\Box$   | П         | _[       | $ \bot $    | _            |          | 147        | $\sqcup$               | _         | $\perp$ | 1       | 1        | ļ              | $\vdash$ | $\sqcup$ |          |     |          |
|            | <u> </u>                   | 48<br>49   | $\dashv$       | -          | -       | -            | $\vdash$ | $\vdash$ | $\vdash$  | $\dashv$     |     | <u> </u>       | 98<br>99 | <u> </u>        | -  |                    | $\vdash$               | 4        | $\vdash$  | $\dashv$ | -           | $\dashv$     | -        | 148<br>149 | ╁╌┤                    | $\dashv$  | ╁       | +       | +-       | +-             | ╂╌┤      | Н        |          |     |          |
|            |                            | 50         | $\dashv$       | +          | +-      | $\vdash$     | -        | H        | Н         | -            |     | -              | 100      | $\vdash$        |  | $\vdash$           | Н                      | $\dashv$ | $\dashv$  | $\dashv$ | $\dashv$    | $\dashv$     | -        | 150        |                        | $\exists$ | 丁       | T       | $\top$   | t              |          |          |          |     |          |